

NEW SPECIES OF *TMESIPTERIS*

By H. N. BARBER, University of Tasmania

In 1943 Wakefield published a short account of the four species of *Tmesipteris* known from south-eastern Australia. His work, based as it was on unrivalled knowledge of the species in the field, greatly clarified the taxonomic status of these forms. His paper should be consulted for earlier taxonomic references. Over the past few years I have been conducting a cytological survey of the genus. The survey (Barber 1955) in general confirms Wakefield's taxonomic treatment.



Fig. 2, Photograph of (left to right) *T. tugana* (Brittons Swamp, Tas.); *T. truncata* (Sommersby Falls, N.S.W.); *T. fowerakeri* (Longwood Range, New Zealand); *T. billardieri* (Brittons Swamp, Tas.).

T. parva (Wakefield) is diploid ($2n = 204 - 210$) as compared with the tetraploid ($2n = 408 - 420$) *T. billardieri* Endl., *T. ovata* Wakefield and *T. truncata* R.Br. These last three are cytologically indistinguishable. The cytological evidence of genetic discontinuity between *T. parva* and the others is amply confirmed by field evidence, no indication of hybridization either on morphological or cytological grounds having been found in mixed populations of these species. For example, *T. parva* and *T. billardieri* grow together sometimes on the same tree-fern trunk at Mt. Irvine in New South Wales. At Mt. Drummer in Victoria, *T. parva*, *T. billardieri* and *T. ovata* grow in the closest proximity with no sign of morphological intermediates or of triploid hybrids.

T. truncata is a more northern form. I have found no instances of this species growing mixed with any of the others although such populations may occur at Mt. Dromedary (N.S.W.). However, since its morphological characteristics differ from the other three species in about the same degree as these three differ *inter se*, it seems safe, as Wakefield has done, to rank this as a fourth species. It is, however, worth mentioning that forms of *T. truncata* with pointed sporangia occasionally occur (Wakefield 1943). I have also

found, in the Jamieson Valley of the Blue Mountains, forms with a slight basal broadening of the leaves but retaining the large round sporangium so characteristic of *T. truncata*. Since the shape of sporangium and leaf are the two main characteristics separating *T. billardieri* from *T. truncata*, it is possible that the two may, if they grow together, form a hybrid swarm. If this proves to be the case, it might be better to group these two as geographical subspecies of the one species, *T. truncata* R. Br., giving each an appropriate trinomial.

The cytological survey has revealed the existence of two more species, one in Tasmania and the other in the South Island of New Zealand. Both forms are diploid with $2n = 204 - 210$. The Tasmanian form, which I propose to name *T. tugana* after a Tasmanian aboriginal name for a fern, is closest morphologically to *T. truncata*. It can be distinguished from this species by the leaves usually becoming slightly broader at the base, by the smaller sporangia and spores and, of course, by the chromosome number. It has so far not been found on the mainland of Australia but appears to be widespread in the west of Tasmania. The only other species so far known from Tasmania is *T. billardieri*.

The second species, which I propose to name *T. fowerakeri* after Mr. C. E. Foweraker who kindly sent me two living collections of it, is closest to *T. billardieri*. It differs from this species in being generally smaller in all parts (leaves, sporangia, spores). The leaves also differ in shape. In *T. fowerakeri* they are usually broadest just below the mid-point and taper gradually into the stem unlike the abrupt termination of the leaves of *T. billardieri*. It is diploid as compared with the tetraploid *T. billardieri*.

Type specimens of the new species are preserved in the Herbarium of the University of Tasmania. Figs. 1 and 2 give a comparison of the two new species with their nearest morphological relatives. I append English and Latin diagnoses. The latter, whilst of no conceivable scientific use in A.D. 1954, are one of the more pleasant anachronisms so characteristic of botanical taxonomy (Barber 1950).

TMESIPTERIS TUGANA new species. Stems medium size (30-40 cm.); leaves broad linear, 2-3 cm. long and 4-6 times as long as broad, slightly broadened towards base, apex truncate mucronate; sporangia spherical to broad ovate 1.5-2 mm. long; spores 65-75 mic. long; sporophytic chromosome number 204-210.

Habitats: Britton's Swamp, Smithton (type); Strahan; Picton River (H. F. Gulline); all in Tasmania.

TMESIPTERIS TUGANA sp. nov. *Caules* 30-40 cm.; *folia* 2-3 cm. *longa, late linearia, ad basin paululum latiora; apex truncatus, mucronatus; sporangium* 1.5-2 mm. *longum, rotundum aut ovatum; sporae* 65-75 mic. *longae; sporophytum chromosomata* 204-210.

TMESIPTERIS FOWERAKERI new species. Stems medium size (20-40 cm.); leaves 1-2 cm. long, oblong, 4 times as long as broad, usually broadest just below midpoint and tapering towards stem, apex truncate mucronate;



Fig. 1, Drawings of the two Tasmanian species of *Tmesipteris*.

Left—*T. tugana*;
Right—*T. billardieri*.

sporangium triangular pointed 2-3 times as long as broad, 3-3.5 mm. long; spores 75-80 mic. long; sporophytic chromosome number 204-210. Habitats: Longwood Range (type) and Westland, South Island, New Zealand.

TMESIPTERIS FOWERAKERI sp. nov. Caulis 20-40 cm.; folia 1-2 cm. longa, oblonga, caulem versus glabratim angustata; apex truncatus, mucronatus; sporangium 3-3.5 mm. longum, trigonum, poracutum; spores 75-80 mic. longae; sporophytiorum chromosomata 204-210.

REFERENCES

- Barber, H. N. 1950—Taxonomy. *Austral. J. Sci.* 12: 184.
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Wakefield, N. A. 1943—Two New Species of *Tmesipteris*. *Pict. Nat.* 60: 142.

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NATURALISTS' NOTEBOOK

(Reserved for your Notes, Observations and Queries)

LYREBIRDS IN GIPPSLAND

During a recent trip to Bulga Park and Tarra Valley it was very pleasant to find lyrebirds plentiful in both these places. Although not easily seen at Bulga Park, their melodious calls were constantly to be heard among the treeferns in the vicinity of the famous suspension bridge.

At the camping ground almost opposite the Tarra Valley Park lyrebirds were even more plentiful, and at times the small forest clearing was surrounded by a chorus from invisible songsters. One particularly vocal bird, hidden somewhere among the treeferns along the stream, continued his singing for almost an hour after darkness had descended on the valley, and the first rich ringing notes at dawn probably came from the same bird. The song certainly came from the same location as did the late vocal display of the previous night.

The waterfalls and pleasant pathways of the Tarra Valley Park linger in one's memory, but the scene which persists most vividly is of a small camping ground surrounded by stately eucalypts, hillsides densely clothed with treeferns, a mountain stream murmuring by, and a chorus of liquid song pouring from the throats of many lyrebirds.

—A. E. BROOKS.

BLUE GUM'S FARTHEST NORTH?

Some years ago when visiting the Belfast Botanic Gardens (Northern Ireland) I saw a young blue gum growing in the centre of a bed of scarlet geraniums. It looked very attractive with its lovely pearly grey foliage and scarlet tips rivalling the flowers in colour. Lately, when writing to an ex-president of the Belfast F.N.C., I mentioned having seen it and she made inquiries at the Gardens and there is certainly a blue gum growing there and doing very well, and they think it is the one I saw. May not this be the farthest north for our lovely tree?

—F. E. SALTER.

A BLACKBIRD GOES FISHING

In a pool containing water plants, goldfish and mosquito fish, in a Canterbury garden, the mosquito fish began mysteriously to disappear. After careful observation a blackbird was seen standing on the edge of the pool and catching the little fish as they swam by, and evidently enjoying his fish meal. A wire fence was then erected and the fish are increasing again.

—F. E. SALTER.